



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,500	01/15/2002	Carl Trevor Ross Pulford	DN1999195USA	6346

7590 01/29/2004

The Goodyear Tire & Rubber Company
Patent & Trademark Department D 823
1144 East Market Street
Akron, OH 44316-0001

EXAMINER

KNABLE, GEOFFREY L

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,500

Applicant(s)

PULFORD ET AL.

Examiner

Geoffrey L. Knable

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1-15-02.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1733

1. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In step (b) of claim 1, reference is made to a layer thickness "relative to the diffusion rate of the co-reacting agents". It however is not entirely clear what restrictions are put on the layer thickness by this requirement such that the scope of protection cannot be readily ascertained. In other words, first, it is not clear which diffusion rate affects the thickness of which layer, i.e. is it the diffusion rate of the agent that is in the particular layer or the rate for the agent in the adjacent layer. Further, how is one to determine whether any given thickness reads on this requirement particularly given that diffusion is based upon parameters such as time and temperature, neither of which are specified? Is this claim requirement simply requiring that the thickness be thin enough that the vulcanization agents can fully diffuse to fully cure the layers, i.e. not requiring any specific thickness range (i.e. upper and lower limits on the thickness)? Clarification is required of the scope of this requirement.

It is also noted that the requirement in claim 1 for layering the compounds in "alternating layers," for purposes of this office action, has been interpreted to read on at least two layers (i.e. one of each compound). If more than this is required (i.e. if the desire is to exclude simply two layers), appropriate amendment should be made.

In claim 4, the reference to "each adjacent layer" is indefinite as claim 1 defines layers both in the context of the layers being bonded as well as the layers forming the

Art Unit: 1733

component. Clarification is required of which is being referenced. It will be assumed that this is in reference to the layers of the "component (22)" but clarification is required.

There are two claims given the same number "6" – these will be referred to as 6(1) and 6(2) for purposes of this office action but clarification is required.

Claim 16 is confusing when read in the context of claim 15 from which it depends. In particular, claim 15 requires preheating the tread whereas claim 16 defines curing the component at room temperature. Is this then indicating that the tread was cooled back down?

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1733

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 3-5, 7, 8 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 795397 to Goodyear.

EP '397 discloses bonding a plurality of thin rubber layers where co-acting curatives are separated into alternating adjacent layers (page 3, lines 4-12). Taking for example the outer layers of the laminate as the claimed elastomeric layers that are being bonded, these outer layers are being bonded by the assembly of alternating layers located therebetween. This reference thus is considered to suggest a method that meets the requirements of claim 1, although the ambiguity noted above with respect to the "relative" thickness makes it difficult to make a complete comparison. The reference does however suggest very thin layers and further clearly desires complete migration of the curatives – the claimed requirement for the thickness is thus considered to be met or obvious from this teaching. As to claim 3, reading claim 4 with claim 11 of EP '397 is considered to suggest the same composition except for the curatives. As to claim 4, the described layers thicknesses clearly meet this requirement. As to claim 5, note claims 6 and 11 of EP '397. As to claims 7-8, note page 3, lines 8-12 of EP '397. As to claim 10, note page 2, lines 25-27 of EP '397 indicates a wide variety of suitable articles that can incorporate the inventive material, it not being clear that the various layers cannot be termed different "components" of that article.

Art Unit: 1733

6. Claims 1, 3, 4, 6(2), 7 and 10-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brodie (US 3,951,720).

Brodie discloses retreading in which a vulcanized tread is bonded to a vulcanized casing using an uncured elastomer (14). Further, this reference suggests that "[I]n either of the above factory methods the sheets of bonding material can be made by plying up one-half the thickness of the layer containing only the vulcanizing agent and the other half containing accelerator ingredients to provide greater storage life" (col. 4, lines 40-46). This is thus considered to suggest forming the bonding layer (14) in the form of two layers, each one with part of the cure agents as claimed. This reference thus is considered to suggest a method that meets the requirements of claim 1, although the ambiguity noted above with respect to the "relative" thickness makes it difficult to make a complete comparison. The reference does however suggest very thin layers and further clearly desires complete migration of the curatives/complete cure – the claimed requirement for the thickness is thus considered to be met or obvious from this teaching. As to claim 3, the above noted part of Brodie only suggests varying the cure agents, this being considered to suggest or certainly rendering obvious using the same compounds for each layer except for the curatives. As to claim 4, taking the exemplary full sheet thickness (0.15 inches – note col. 3, lines 56-58), half this thickness (as taught for each layer) would be .075 inches or 1.9 mm and thus within the claimed range. As to claim 6(2), storage is clearly taught (e.g. col. 2, lines 60+). The requirement of claim 7 is taught as noted above. As to claims 10-12, Brodie suggests

Art Unit: 1733

bonding a precured tread to a carcass for retreading. As to claim 13, immediate use is clearly contemplated by Brodie (e.g. col. 4, lines 54-56; col. 5, lines 9-11) – it is not clear if this is being described as implicitly including the two layer embodiment – in any event, it would have been obvious to use any of the described strips immediately if desired for only the expected results. Claim 14 is also clearly met.

7. Claims 1, 3, 4, 6(1), 6(2), 7 and 10-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Carver (US 3,136,673).

Carver discloses retreading in which a vulcanized tread is bonded to a vulcanized casing using an uncured laminate including uncured layers "7" and "9," the vulcanization agent and vulcanization accelerator being split among these two layers – e.g. note col. 2, lines 32-42. This is thus considered to suggest forming the bonding layer in the form of two layers, each one with part of the cure agents as claimed. This reference thus is considered to suggest a method that meets the requirements of claim 1, although the ambiguity noted above with respect to the "relative" thickness makes it difficult to make a complete comparison. The reference does however suggest very thin layers (e.g. col. 3, line 19; col. 4, line 1) and further clearly desires complete migration of the curatives/complete cure – the claimed requirement for the thickness is thus considered to be met or obvious from this teaching. As to claim 3, the compositions at col. 3, lines 50-65 and col. 4, lines 1-16 seem to meet the claim. As to claim 4, the "0.015 gauge" thickness is considered to be in inches and would be well below the claimed upper limit. As to claim 6(1), the two layers are clearly built prior to being

Art Unit: 1733

placed between the tread. As to claim 6(2), the claimed "any" period of time is not considered to define over what is taught by the reference. The requirement of claim 7 is taught as noted above. As to claims 10-12, Carver suggests bonding a precured tread to a carcass for retreading. As to claim 13, the laminate is not formed until immediately prior to retreading, this also not being defined over by the claim 14 reference to "any time".

8. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carver (US 3,136,673) as applied above, and further in view of Taylor (US 4,149,926).

Taylor teaches advantages of preheating the precured tread in a retreading process, it being obvious to preheat the tread in the Carver retreading process in light of these teachings. As to claim 16, it is not entirely clear how this claim is to be interpreted in light of claim 15. In any event, Carver clearly contemplates room temperature curing if desired (e.g. col. 2, lines 55-61).

9. Claims 1-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brodie (US 3,951,720) or Carver (US 3,136,673) taken in view of Harrison et al. (US 1,434,892) and EP 795897 to Goodyear.

Brodie and Carver have been described above, these references being considered to teach a bonding process consistent with that claimed for the reasons set forth above. These references however are only directed to splitting the retreading bonding layer into two layers, each with part of the curatives. This additional rejection has been made to further show that it would have been obvious to provide the bonding layer in the form of more than two layers if desired.

Art Unit: 1733

In particular, Harrison et al. discloses a solution to a problem with manufacturing rubber articles from sheets and particularly addresses the problem of premature cure in the rubber mills and/or calender, this problem being particularly acute with the inclusion of accelerators to reduce the heat/time to vulcanize. To solve this problem, the reference suggests providing the rubber material in two batches, one with e.g. the sulfur, the other with the accelerator, and sheeting this material into thin sheets which are alternately built up until the desired thickness is achieved. The reference in fact even suggests that *the thinner the sheets, the more even the cure throughout* (e.g. page 2, lines 76+). EP '397 discloses a similar teaching of layering thin sheets with split curatives as described previously. In light of these teachings, it is considered that the ordinary artisan would have found it to have been obvious to provide the bonding layer in a retreading process as in the primary references in the form of more than two alternating layers if desired with an expectation of being able to further improve cure uniformity. It should additionally be noted that Harrison et al. explicitly indicates an understanding that it may be desirable to *select the layer thicknesses based upon the "rate of migration" of the curing components* (e.g. page 2, lines 62+), this being considered to suggest relative thicknesses as defined in claim 1.

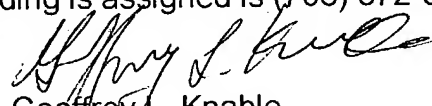
The dependent claims that have been rejected over the primary references alone are rejected principally for the reasons already set forth. As to claims 2 and 17, the particular rate of cure would have been readily and routinely selected by the ordinary artisan, it being considered that in light of the Harrison et al. teachings, the ordinary artisan further would have appreciated that splitting the curatives would allow faster

Art Unit: 1733

cures since there then is no concern with premature cure in the mills, etc. As to claim 5, as already noted, Harrison et al. explicitly indicates that the layers can be of the same thickness but that it may be desirable to select the layer thicknesses based upon the "rate of migration" of the curing components, this rendering different thicknesses obvious (e.g. page 2, lines 62+). As to claim 8, EP '397 is also directed to splitting the curative among layers and explicitly indicates that the zinc oxide can be provided in only one layer if desired (page 3, lines 8-12), this rendering this claim obvious. As to claim 9, it would seem to be known that heat may be required to cause the desired migration (e.g. page 1, lines 77+ of Harrison), it being considered that this would suggest agents as claimed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.



Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
January 24, 2004